CLAIMS

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1. A compound represented by formula (I)

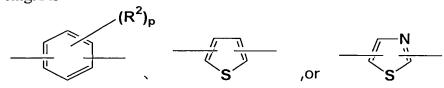
T
$$(CH_2)_n - Y - G - D$$

X 14 (I)
OH

wherein is a single bond or double bond,

is α -configuration, β -configuration or a voluntary mixture of α -configuration and β -configuration,

D is -COOR¹ or tetrazoryl, R¹ is hydrogen or C1-4 alkyl, G is ringA or C1-4 alkylene, ringA is



R² is a halogen atom, C1-4 alkyl or C1-4 alkoxy,

p is 0 or an integer of 1-4,

when p is 2 or more, plural R2's are the same or different,

Y is a single bond or -S-,

T is oxygen or sulfur,

X is -CH₂-, -O- or -S-,

ringB is C3-7 cycloalkyl optionally substituted,

$$(R^3)_q$$

$$(R^3)_q$$

$$(R^3)_q$$

$$(R^3)_q$$

$$(R^3)_q$$

$$(R^3)_q$$

$$(R^3)_q$$

wherein R³ is (1) a halogen atom, (2) C1-4 alkyl optionally substituted with 1-5 of halogen atom(s), (3) C1-4 alkoxy optionally substituted with 1-5 of halogen atom(s), (4) C1-4 alkyl substituted with C1-4 alkoxy, (5) phenyl or (6) 3- to 15-membered mono-, bi- or tri-heterocyclic aryl containing 1 to 4 hetero atom(s) selected from oxygen, nitrogen and sulfur atom(s) which may be partially or fully saturated, and (5) phenyl or (6) heterocyclic aryl in R³ is optionally substituted with 1-3 of (a) halogen atom(s), (b) C1-4 alkyl, (c) C1-4 alkoxy and/or (d) nitro,

q is 0 or an integer of 1-5,
when q is 2 or more, plural R³'s are the same or different,
n is an integer of 1-4,
a salt thereof, a solvate thereof, a cyclodextrin clathrate thereof, or a prodrug thereof.

- 2. The compound according to claim 1, which is selected from the group consisting of:
- (1) 4-[(2-{(4S)-4-[(1E,3S)-4-(3-ethylphenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl]ethyl)sulfanyl]butanoic acid,
- (2) 4-[(2-{(4S)-4-[(1E,3S)-3-hydroxy-4-phenylbut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (3) 4-{[2-((4S)-4-{(1E,3S)-4-[4-fuloro-3-(trifuloromethyl)phenyl]-3-hydroxybut-1-enyl}-2-oxo-1,3-thiazolidine-3-yl)ethyl]sulfanyl}butanoic acid,
- (4) 4-[(2-{(4S)-4-[(1E,3S)-4-(3,5-difulorophenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (5) 4-[(2-{(4S)-4-[(1E,3S)-3-hydroxy-4-(3-propylphenyl)but-1-enyl]-2-oxo-1,3-thiazolidine-3-yl]ethyl)sulfanyl]butanoic acid,
- (6) 4-[(2-{(4S)-4-[(1E,3S)-4-(3-ethyl-4-fulorophenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (7) 4-[(2-{(4S)-4-[(1E,3S)-4-(3,4-difulorophenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl)butanoic acid.
- (8) 4-{[2-((4S)-4-{(1E,3S)-3-hydroxy-4-[3-(trifuloromethyl)phenyl]but-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (9) 4-[2-{(4S)-4-[(1E,3S)-4-(4-fuloro-3-methylphenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (10) 4-[(2-{(4S)-4-[(1E,3S)-4-(3-fulorophenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (11) 4-[(2-{(4S)-4-[(1E,3S)-4-(3-chloro-4-fulorophenyl)-3-hydroxybut-1-enyl]-2-oxo-1,3-thiazolidine-3-yl}ethyl)sulfanyl]butanoic acid,
- (12) 4-{[2-((4S)-4-{(1E,3S)-3-hydroxy-4-[3-(methoxymethyl)phenyl]but-1-enyl}-2-oxo-1,3-thiazolidine-3-yl)ethyl]sulfanyl}butanoic acid,
- (13) 7-{(2R)-2-[(1E,3S)-4-(4-fulorophenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (14) 7-{(2R)-2-[(1E,3S)-4-(3,5-difulorophenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,

(15) 7-((2R)-2-{(1E,3S)-4-[4-fuloro-3-(trifuloromethyl)phenyl]-3-hydroxybut-1-enyl}-5-thioxopyrrolidine-1-yl)heptanoic acid,

b

- (16) 7-{(2R)-2-[(1E,3S)-4-(4-fuloro-3-methylphenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (17) 7-{(2R)-2-[(1E,3S)-4-(3-ethyl-4-fulorophenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (18) 7-((2R)-2-{(1E,3S)-3-hydroxy-4-[3-(trifuloromethyl)phenyl]but-1-enyl}-5-thioxopyrrolidine-1-yl)heptanoic acid,
- (19) 7-{(2R)-2-[(1E,3S)-4-(3-fulorophenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (20) 7-{(2R)-2-[(1E,3S)-3-hydroxy-4-phenylbut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (21) 7-{(2R)-2-[(1E,3S)-4-(3,4-difulorophenyl)-3-hydoroxybut-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid,
- (22) 7-{(2R)-2-[(1E,3S)-4-(3-chloro-4-fulorophenyl)-3-hydroxybut-1-enyl]-5-thioxiopyrrolidine-1-yl}heptanoic acid,
- (23) $7-\{(2R)-2-[(1E,3S)-4-(3-ethylphenyl)-3-hydroxybut-1-enyl]-5-thioxopyrrolidine-1-yl\}heptanoic acid,$
- (24) 7-{(2R)-2-[(1E,3S)-3-hydroxy-4-(3-propylphenyl)but-1-enyl]-5-thioxopyrrolidine-1-yl}heptanoic acid.
- 3. The compound according to claim 1, which is represented by formula (I-1):

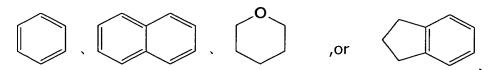
T
$$(CH_2)_n - S - G^1 - COOR^1$$
X 14 $(I-1)$
OH

wherein G^1 is ring A^1 or C1-4 alkylene,

ringA1 is

wherein left-pointing arrow represents binding to S, and right-pointing arrow represents binding to COOR¹,

ringB¹ is C3-7 cycloalkyl,



;

ringB¹ may be substituted with a halogen atom, C1-4 alkyl, phenyl, methoxymethyl, trifuloromethyl and/or trifuloromethoxy,

other symbols have the same meanings as described in claim 1, and wherein when T is oxygen, X is -CH₂-, and when n is an integer of 2-4, G¹ is ringA¹.

- 4. The compound according to claim 3, which is selected from the group consisting of:
- (1) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-phenylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (2) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-ethylphenyl)-17, 18, 19, 20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (3) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-chloro-4-fulorophenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (4) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(naphthalene-2-yl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (5) (15α,13E)-9-oxo-15-hydroxy-16-(3-trifuloromethoxyphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (6) (15α,13E)-9-oxo-15-hydroxy-16-(4-fuloro-3-phenylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (7) (15α,13E)-9-oxo-15-hydroxy-16-(4-fuloro-3-methylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (8) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3, 5-difulorophenyl)-17, 18, 19, 20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (9) (15α,13E)-9-oxo-15-hydroxy-16-(3-fulorophenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (10) (15α,13E)-9-oxo-15-hydroxy-16-(4-fuloro-3-trifuloromethylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (11) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-trifuloromethylphenyl)-17, 18, 19, 20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (12) (15α,13E)-9-oxo-15-hydroxy-16-(3,4-difulorophenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,

(13) (15α,13E)-9-oxo-15-hydroxy-16-phenyl-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,

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- (14) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-propylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (15) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-methoxymethylphenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (16) (15α,13E)-9-oxo-15-hydroxy-16-(3-ethyl-4-fulorophenyl)-17,18,19,20-tetranol-5-thia-8-aza-10-oxaprost-13-enoic acid,
- (17) (15α,13E)-9-oxo-15-hydroxy-16-phenyl-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-aza-10-oxaprost-13-ene,
- (18) (15α,13E)-9-oxo-15-hydroxy-16-(3-methylphenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-aza-10-oxaprost-13-ene,
- (19) (15α, 13E)-9-oxo-15-hydroxy-16-(4-fulorophenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-aza-10-oxaprost-13-ene
- (20) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(naphthalene-2-yl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-aza-10-oxaprost-13-ene,
- (21) (15α,13E)-9-oxo-15-hydroxy-16-(3-phenylphenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-aza-10-oxaprost-13-ene,
- (22) (15α,13E)-9-oxo-15-hydroxy-16-(3-phenylphenyl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (23) (15α,13E)-9-oxo-15-hydroxy-16-(naphthalene-2-yl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (24) (15α,13E)-9-oxo-15-hydroxy-16-(4-fuloro-3-phenylphenyl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (25) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-ethylphenyl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (26) (15α,13E)-9-oxo-15-hydroxy-16-(3-methylphenyl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (27) (15α,13E)-9-oxo-15-hydroxy-16-(3-trifuloromethoxyphenyl)-5-(5-carboxythiophene-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- $(28) \qquad (15\alpha,13E)-9-oxo-15-hydroxy-16-(4-fuloro-3-phenylphenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,$
- (29) (15α,13E)-9-oxo-15-hydroxy-16-(3-ethylphenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (30) (15α,13E)-9-oxo-15-hydroxy-16-(naphthalene-2-yl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,

(31) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-trifuloromethoxyphenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,

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- (32) $(15\alpha,13E)$ -9-oxo-15-hydroxy-16-(3-chloro-4-fulorophenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (33) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-cyclopropyl-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (34) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-cyclohexyl-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (35) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(4-fulorophenyl)-5-(5-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (36) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-cyclobutyl-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (37) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(4-chlorophenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (38) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-cycloheptyl-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (39) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(indane-2-yl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (40) $(15\alpha,13E)$ -9-oxo-15-hydroxy-16-(tetrahydropyran-4-yl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (41) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(7-methylnaphthalene-2-yl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (42) $(15\alpha,13E)$ -9-oxo-15-hydroxy-16-(4-fulorophenyl)-17,18,19,20-tetranol-5,10-dithia-8-azaprost-13-enoic acid,
- (43) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(4-fulorophenyl)-17,18,19,20-tetranol-6-thia-8-azaprost-13-enoic acid,
- (44) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-methylphenyl)-17,18,19,20-tetranol-6-thia-8-azaprost-13-enoic acid, and
- (45) $(15\alpha, 13E)$ -9-thioxo-15-hydroxy-16-(4-fulorophenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid.
- 5. The compound according to claim 1, which is represented by formula (I-2):

wherein left-pointing arrow represents binding to $-(CH_2)_2$ -, and right-pointing arrow represents binding to D,

R⁴ is (1) a halogen atom, (2) C1-4 alkyl (3) C1-4 alkoxy, (4) C1-4 alkyl optionally substituted with 1-5 of halogen atom(s), (5) C1-4 alkoxy optionally substituted with 1-5 of halogen atom(s), (6) phenyl or (7) 3- to 15- membered mono-, bi- or tri-heterocyclic aryl containing 1 to 4 hetero atom(s) selected from oxygen, nitrogen and sulfur atom(s) which may be partially or fully saturated, and (6) phenyl or (7) heterocyclic in the R⁴ may be substituted with 1-3 of (a) a halogen atom(s), (b) C1-4 alkyl (c) C1-4 alkoxy and/or (d) nitro,

r is an integer 1 to 5, and other symbols have the same meanings as described in claim 1.

- 6. The compound according to claim 5, which is selected from the group consisting of:
- (1) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3,5-dimethylphenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (2) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-(benzothiazol-2-yl)phenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (3) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(4-fulorophenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (4) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(5-methylbenzothiazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (5) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-(5-methylbenzoxazol-2-yl)phenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (6) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(6-methylbenzoxazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,

- (7) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-(6-methylbenzoxazol-2-yl)phenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (8) $(15\alpha, 13E)$ -1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-(4-methylbenzothiazol-2-yl)phenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (9) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(4-methylbenzothiazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (10) (15α,13E)-1,6-(2-fuloro-1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-methylphenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (11) (15α,13E)-1,6-(3-methyl-1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-methylphenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (12) (15α,13E)-9-oxo-15-hydroxy-16-(3-(5,7-dimethylbenzoxazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (13) (15α,13E)-9-oxo-15-hydroxy-16-(3-(5-chlorobenzothiazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (14) (15α,13E)-1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-(5-chlorobenzothiazol-2-yl)phenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (15) (15α) -9-oxo-15-hydroxy-16-(3-(2,4-dimethylphenyl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (16) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(3,4-dimethylphenyl))-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (17) $(15\alpha, 13E)$ -1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3,4-difulorophenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (18) $(15\alpha, 13E)$ -1,6-(2-methyl-1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-methylphenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (19) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(5-chlorobenzoxazol-2-yl)phenyl)-5-(4-carboxythiazol-2-yl)-1,2,3,4,17,18,19,20-octanol-5-thia-8-azaprost-13-ene,
- (20) $(15\alpha, 13E)$ -1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-methyl-4-fulorophenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (21) $(15\alpha, 13E)$ -1,6-(1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-chloro-4-fulorophenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (22) $(15\alpha, 13E)$ -1,6-(3-methoxy-1,4-interphenylene)-9-oxo-15-hydroxy-16-(3-methylphenyl)-2,3,4,5,17,18,19,20-octanol-8-azaprost-13-enoic acid,
- (23) (15α,13E)-9-oxo-15-hydroxy-16-(3-trifuloromethoxyphenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid,
- (24) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3,5-difulorophenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid,

- (25) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(phenyl)phenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid,
- (26) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-(4-fulorophenyl)phenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid, and
- (27) $(15\alpha, 13E)$ -9-oxo-15-hydroxy-16-(3-phenyl-4-fulorophenyl)-17,18,19,20-tetranol-5-thia-8-azaprost-13-enoic acid.
- 7. A pharmaceutical composition comprising the compound represented by formula (I) according to claim 1, a salt thereof, a solvate thereof, a cyclodextrin clathlate thereof, or a prodrug thereof.
- 8. An EP4 agonist comprising the compound represented by formula (I) according to claim 1, a salt thereof, a solvate thereof or a cyclodextrin clathlate thereof, or a prodrug thereof.
- 9. A method for preventing and/or treating EP4-mediated disease, which comprises administrating to a mammal an effective amount of the compound represented by formula (I) according to claim 1, a salt thereof, a solvate thereof or a cyclodextrin clathrate thereof, or a prodrug thereof.
- 10. Use of the compound represented by formula (I) according to claim 1, a salt thereof, a solvate thereof, a cyclodextrin clathrate thereof, or a prodrug thereof for the manufacture of an EP4 agonist.